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Sustainable development

Sustainable mountain development

Report of the Secretary-General

Summary

The present report was prepared in response to General Assembly resolution 62/196, in which the Assembly requested the Secretary-General to report to it at its sixty-fourth session on the status of sustainable development in mountain regions. The report describes the status of sustainable mountain development at the national and international levels, including an overall analysis of the challenges that lie ahead, and provides suggestions for consideration by the Assembly as to how to continue to promote and effectively sustain development in mountain regions around the world within the existing policy context, including chapter 13 of Agenda 21, the Plan of Implementation of the World Summit on Sustainable Development ("Johannesburg Plan of Implementation") and the Millennium Development Goals.

* A/64/150.

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I. Introduction

1. At its fifty-third session, the General Assembly adopted resolution 53/24, in which it proclaimed 2002 the International Year of Mountains. The resolution encouraged Governments, the United Nations system and all other actors to take advantage of the Year in order to increase awareness of the importance of sustainable mountain development. The Food and Agriculture Organization of the United Nations (FAO) prepared a report on the achievements of the year, which was transmitted to the General Assembly by the Secretary-General (see A/58/134).
2. The International Year of Mountains in 2002 built on chapter 13 of Agenda 21, which focuses on mountain issues, and was dedicated to protecting mountain ecosystems and improving the well-being of mountain people. The Year acted as a catalyst for long-term, effective action to implement chapter 13: it achieved much by raising awareness of the importance of mountains to life and the need to improve mountain environments and the livelihoods of mountain people; supported the establishment of 78 national committees for country-level action; and strengthened partnerships with stakeholders in mountain issues, which culminated in the launch of the Mountain Partnership at the World Summit on Sustainable Development, held in Johannesburg, South Africa, from 26 August to 4 September 2002.
3. The Year also led to the adoption of resolution 57/245, in which the General Assembly designated 11 December as International Mountain Day, as from 2003, and encouraged the international community to organize events at all levels on that day to highlight the importance of sustainable mountain development. The General Assembly recommended that the provision of development assistance to poor mountain countries should be included in the current agenda of the General Assembly. It was also suggested that debt relief be considered an important means of fighting poverty in those regions.
4. In its resolution 59/238, the General Assembly decided to consider at its sixtieth session, under the agenda item entitled "Sustainable development", a sub-item entitled "Rendering assistance to poor mountain countries to overcome obstacles in socio-economic and ecological areas". In accordance with resolution 58/216, the Secretary-General submitted a report entitled "Sustainable mountain development" (A/60/309) to the General Assembly at its sixtieth session.
5. In its resolution 60/198, the General Assembly requested the Secretary-General to report to it at its sixty-second session on the status of sustainable development in mountain regions under a sub-item entitled "Sustainable mountain development" of the item entitled "Sustainable development". A report entitled "Sustainable mountain development" (A/62/292) was prepared and submitted by the Secretary-General to the General Assembly at its sixty-second session.
6. The present report is submitted in accordance with General Assembly resolution 62/196, in which the Assembly requested the Secretary-General to report to it at its sixty-fourth session on the status of sustainable development in mountain regions, under item 55 (h) of the provisional agenda. It was prepared by FAO in collaboration with Governments, relevant agencies of the United Nations system and other organizations. There was a high response rate to requests for information on progress achieved, but the restriction on reporting length has not made it possible to accommodate all of the valuable input, which are now available from <http://www.fao.org/forestry/57504/en/>.

II. Background and challenges

7. There is increasing awareness that mountains are fragile ecosystems that are of global importance as the source of most of the Earth's freshwater, repositories of rich biological diversity, popular destinations for recreation and tourism and areas of important cultural diversity, knowledge and heritage. Covering about one quarter of the world's land surface, mountains provide a direct life-support base for about 12 per cent of the world population, as well as essential goods and services to more than half of humankind. Yet many of the world's most impoverished and food-insecure people live in mountain regions. Consequently, there is a need to ensure the ecological health and the economic and social improvement of mountain areas for the sake of both mountain inhabitants and people living in lowland areas.

8. Awareness of the importance of mountain ecosystems and communities has increased since the adoption of chapter 13 of Agenda 21, entitled "Managing fragile ecosystems: sustainable mountain development". Commitment and will were strengthened during the International Year of Mountains in 2002, and mountains have gained an increasingly high profile on agendas at all levels. The World Summit on Sustainable Development resulted in the adoption of the Johannesburg Plan of Implementation, paragraph 42 of which describes actions required to address sustainable development of mountain regions and, along with chapter 13 of Agenda 21, it serves as the overall policy framework for sustainable mountain development.

9. Despite increased recognition of mountain issues and tangible results, significant constraints remain to alleviating poverty, averting environmental degradation and attaining sustainable development in mountain regions in line with the Millennium Development Goals.

10. Seven years on from the International Year of Mountains, many of the challenges remain. Mountain communities and their environments are still vulnerable to growing demands for water and other natural resources, expanding tourism, greater rates of out-migration, disproportionate incidences of conflict and the pressures of industry, mining and agriculture in an increasingly globalized world. The global economic slowdown, paired with soaring food prices, has dramatically increased the number of hungry and undernourished people, and mountain people are particularly vulnerable to food shortages. The threats and consequences of climate change are providing new challenges for mountains and mountain people that require urgent attention and concerted efforts to resolve. There is a clear need for higher levels of funding and investment in mountain areas, enhanced coordination and collaboration, and a stronger enabling environment with more supportive laws, policies and institutions.

III. National action

11. Action at the national level is a key factor in achieving progress in sustainable mountain development. In recent years there has been a steady increase of activities and initiatives and support from the international community, which have fostered the implementation of strategies, including enabling policies, within the framework of national development plans. As it is beyond the scope of the present report to describe the multitude of activities undertaken by countries, the following section

provides selected examples and highlights of actions being taken at the national level for the sustainable development of mountain regions.

Africa

12. In Algeria, the Ministry of Land Planning, Environment and Tourism is implementing an integrated management approach to foster socio-economic activities and protect fragile ecosystems in the region of Hauts Plateaux and to promote the sustainable land planning and management of the natural corridor from the coastal zone to the high plains, which has a wealth of natural resources and is of great economic importance.

13. In Morocco, several government agencies are launching a project in the Tatiouine basin of Khenifra province to assist key stakeholders in combating desertification through forest plantations and the implementation of an integrated and collaborative watershed management approach. The project, implemented by FAO, is a component of an interregional programme funded by the Government of Spain. The Government of Morocco, with support from the Technical Cooperation Programme of FAO and the Mountain Products Programme (within the context of the Mountain Partnership), is implementing a project for the production of saffron in the Anti-Atlas mountains. Working in one of the least developed regions of the country with the local non-governmental organization, Migration et développement, and the Slow Food movement, the project is generating valuable information regarding the technical, social and economic aspects of production and processing, as well as a comprehensive overview of the entire saffron value chain.

14. In Uganda, several mountain projects are being implemented. The Mount Elgon Regional Ecosystem Conservation Programme aims to improve livelihoods and alleviate poverty by creating opportunities of payments for environmental services in the context of mitigation/adaptation to climate change. The programme, which is active in Kenya and Uganda, was formulated by the International Union for the Conservation of Nature and Natural Resources and is co-financed by the Governments of Norway and Sweden. The Rwenzori Mountains Conservation and Environmental Management Project, which is funded by the Norwegian Agency for Development Cooperation, contributes to sound watershed management, the sustainable use of natural resources and biodiversity conservation in this mountain ecosystem.

Asia

15. In 2009, Kyrgyzstan adopted a new law that radically changed the pasture management system in the country by transferring the responsibility for pasture management to local users. With support from the CAMP Alatau project on sustainable pasture management, funded by German Technical Cooperation, pasture committees were established in three pilot territorial self-government areas at the watershed level of the Jergetal and Ottuk Rivers in northern Kyrgyzstan.

16. In Lebanon, several projects are dealing with water and soil conservation in mountain areas, for example, the El Qaa watershed project and the United Nations Development Programme funded project on "Flood risk management and water harvesting for livelihood recovery in Baalbeck-Hermel, which aims to reverse land degradation and desertification through water harvesting techniques, as well as to restore vegetation cover and better land management practices.

17. In Nepal, the Ministry of Agriculture is implementing a project, with support from FAO, to promote national and local capacities for disaster preparedness and climate risk management in the agricultural sector. The project works in four districts and demonstrates location-specific technologies for climate and disaster risk management at community levels.

18. Medium-term rehabilitation efforts are ongoing in the earthquake-affected areas of Pakistan. For example, the Earthquake Reconstruction and Rehabilitation Authority is implementing a project, funded by the Swedish International Development Cooperation Agency with technical support from FAO, which focuses on improving local livelihoods, institutional capacity-building and control of hydrogeological hazards through collaborative watershed management at the village level.

19. In the Philippines, the Department of Environment and Natural Resources launched a comprehensive upland development programme in 2007 linking food security and poverty reduction to income-generating activities based on wood and non-wood forest products. In 2009, the focus has been on the environmental services provided by vital watersheds, protection forests and protected areas.

20. Since 2008, the Government of Turkey has been implementing a pilot project, supported by FAO, aimed at building the capacity in modern approaches to sustainable mountain development in the Yuntbagi Mountains, Manisa Province, and at mainstreaming sustainable mountain development in the national planning process.

Europe

21. In Italy, the project "Agro-ecological assessment of permanent grasslands" in the Valtellina Valley identifies the interrelations between the grassland ecosystem, local development strategies and other socio-economic thrusts, in order to assess the sustainability of local farming activities and future pressure over natural resources. The Italian National Union of Mountain Municipalities, Communities and Authorities is promoting employment opportunities, innovation, entrepreneurship and investment growth in fields such as renewable energy in mountain communities. In 2009, the World Heritage Committee of the United Nations Educational, Scientific and Cultural Organization (UNESCO) declared the Dolomites, in the northern Italian Alps, a World Heritage Site.

22. In southern Poland, sustainable mountain development is receiving continuous and increasing attention. FAO, with strong collaboration of non-governmental organizations, supported a project in the Sudety Mountains, which promoted the inclusion of specific needs and concerns relevant to mountains in the strategic planning for the development of six mountain provinces in Poland.

23. The Jungfrau-Aletsch World Heritage Site in the Swiss Alps is noted for its comprehensive knowledge system covering environmental, socio-economic and cultural data. The system includes a long-term research and monitoring concept established by the site's management centre with support from the Centre for Development and Environment of the University of Bern.

Latin America

24. Since 2005, the Committee for Sustainable Development in Mountain Regions of Argentina has been very active on both the national and international fronts. A large number of ministries, universities and non-governmental organizations are represented in the Committee, which is currently undergoing a decentralization process to effectively meet the needs of the different mountain areas and ranges in Argentina. The Committee recently established thematic groups to discuss and identify activities and projects to be implemented. It has played an active role in the launch and consolidation of the Andean Mountain Partnership Initiative.

25. In 2008, the Protected Areas Management and Environment Office in Chile established the glaciers and mountains programme, coordinated by the Corporación Nacional Forestal. Sixty per cent of the glaciers in South America are in Chile, and the Government issued a national policy on glaciers in 2009 in order to protect them. In 2008, the Directorate General of Water established the Unit of Glaciology and Snow in order to create a national programme for glaciological survey and study as well as to monitor the glaciers' territory.

26. In 2008, Ecuador adopted a new Constitution which focuses attention on environmental conservation and natural resources, especially water and fragile ecosystems, including mountains. The Ministry of Environment developed policies regarding the Andean Páramos ecosystems, wetlands, forests and agrobiodiversity. The Government has requested FAO support to launch the project entitled "Poverty, Desertification and Integrated Watershed Management" (a component of an interregional programme funded by the Government of Spain) in Porto Viejo, province of Manabí, to expand integrated watershed management programmes and improve livelihoods in pilot watersheds affected by desertification and degradation. In addition, FAO has approved a Technical Cooperation Programme project for the integrated sustainable development of a mountain area managed by a local community.

27. In Guatemala, the Forest Incentive Programme and the Smallholder Forestry and Agroforestry Vocation Incentive Programme promote mechanisms for environmental services and public goods provided by natural and planted mountain forests. The \$12 million investment enabled the reforestation of bare mountain slopes and the conservation of natural forests, benefiting more than 350,000 people. The National Forest Institute, in collaboration with several municipalities, is implementing the Project for Strengthening Municipal and Communal Forestry, which is aimed at decentralizing administration and management of mountain forest resources, and at fostering participatory processes involving local communities and government.

28. The Government of Mexico, through the National Forest Commission is implementing a project funded by the World Bank and the Global Environment Facility to improve the environmental services that forests provide at the local (water supply) and global (biodiversity conservation and carbon sequestration) levels, by strengthening the payment for environmental services schemes currently implemented and developing new local mechanisms. In 2008, 25,000 hectares of forest and upland have were placed under protective management, thanks to 36 million pesos paid by service users and 36 million pesos paid by the National Forest Commission.

29. Peru has continued its efforts to promote sustainable mountain development at all levels. It played a key role in the observance of the International Year of the Potato, 2008. A global conference on the theme "Potato science for the poor" was organized in Cuzco in 2008, aimed at tapping the potato's potential in promoting agriculture, economy and food security, especially in the world's poorest countries. Together with Argentina, Peru promoted the development of the Andean Mountain Partnership Initiative.

IV. International action

A. Thematic initiatives

Biodiversity conservation and mountain ecosystems

30. In 2004, the Convention on Biological Diversity adopted the Programme of Work on mountain biological diversity to reduce significantly the loss of mountain biological diversity by 2010 at the global, regional and national levels. The Programme of Work promotes the ability of mountain ecosystems to provide goods and services needed for human well-being, poverty alleviation and meeting the Millennium Development Goals. Out of 98 reporting countries, 73 per cent reported having taken measures to prevent and mitigate the negative impact of key threats to mountain biodiversity. A joint Memorandum of Cooperation was signed between the Alpine Convention, the Carpathian Convention and the Convention on Biological Diversity, aimed at implementation of the Programme of Work on mountain biological diversity.

31. In 2008, six countries of the Dinaric Arc Ecoregion (Albania, Bosnia and Herzegovina, Croatia, Montenegro, Serbia and Slovenia) joined forces to protect their rich natural heritage by building an effective network of protected areas. This major commitment originated in the recognition that the natural and cultural wealth of the Dinaric region is a critical asset on which social and economic development can be based, and in the awareness that protecting this natural and cultural wealth can be achieved only with close cooperation among the Dinaric countries.

32. The Global Mountain Biodiversity Assessment Programme of DIVERSITAS contributes to policy on the conservation and sustainable use of biodiversity in mountain regions. In cooperation with the Global Biodiversity Information Facility, it encourages a global effort to build biodiversity databases on mountain organisms, in order to achieve a better understanding of mountain biodiversity and predict its changes. In 2008, the Global Mountain Biodiversity Assessment Programme organized a workshop on the theme "Data mining for global trends in mountain biodiversity" and a joint workshop with the International Centre for Integrated Mountain Development on the theme "Linking geodata with biodiversity information in the Himalayas". The Global Mountain Biodiversity Assessment Programme also coordinates a worldwide network of field experiments on land use and biodiversity in steep mountain terrain. Projects are under way in the Bolivian Altiplano, central Caucasus (Georgia), European Alps (Austria, France and Switzerland) and the Himalayas (China).

33. An international conference on the theme "Mountains of the world: ecology, conservation and sustainable development" was held in Oman in 2008. The

conference resulted in a set of recommendations for action in the highly sensitive and vitally important arid and semi-arid mountain ecosystems. The Mountain Partnership Secretariat at FAO is working actively with members, including the secretariat of the United Nations Convention to Combat Desertification, to follow up on the conference's recommendations and to facilitate collaborative action to promote an agenda for dry mountain regions.

Climate change

34. As the rapid retreat of glaciers is demonstrating worldwide, mountains are early indicators of climate change. It is vital to study and monitor the biological, physical and environmental health of mountains in an effort to better understand, manage and mitigate the negative effects of climate change.

35. In 2008, the Office of the United Nations Environment Programme (UNEP) in Vienna, in partnership with several institutions and with the support of the Government of Italy, organized a conference on the theme "Mountains as early indicators of climate change". An account of the proceedings was published in 2009.

36. The Global Observation Research Initiative in Alpine Environments aims to establish and maintain a site-based network for the long-term surveillance of the impacts of climate change on fragile alpine ecosystems and biodiversity in high mountain systems around the world. Through resurveys at intervals of 5 to 10 years, changes in species cover and composition can be linked directly to continuously measured temperature series. The network currently comprises more than 50 teams working in 70 mountain regions distributed over five continents. The internationally standardized methodology and the rapidly growing number of observation sites build the foundation for a global indicator on warming-induced losses of biodiversity in alpine environments.

37. The Ev-K²-CNR (Italian National Research Council) Committee, which promotes scientific and technological research in mountain areas, has researched variations in the surface area of glaciers around Mount Everest during the second half of the twentieth century through comparison of historical maps. The comparison reveals an overall decrease in glacier area (by 5 per cent), a result which is in line with the area reductions found by other studies of glaciers in Asia. The Stations at High Altitude for Research on the Environment project, initiated by the Ev-K²-CNR Committee, promotes multidisciplinary research activities related to climate change on the atmosphere, glaciology, energy and water cycle, limnology, biodiversity and natural resources, and medicine.

38. The Mountain Research Initiative supported the efforts of the Cordillera Forest Dynamics Network to understand the impact of climate change on Cordilleran forests. It organized a workshop on the impact of climate change on water resources management to translate research results into guidance for water managers. It has proposed the NET-DYNAMO project to the European Science Foundation to develop climate change assessment tools for mountain catchments and has organized workshops on global change in mountain regions at conferences of the American Geophysical Union and European Geosciences Union.

39. The Mountain Institute organized a workshop in 2009 on tropical glacier recession in Peru. The theme of the workshop, "Adapting to a world without

glaciers", explored the impact of short- and long-term glacial recession and global warming on downstream rural and urban populations.

Mountain water

40. Mountain water resources are increasingly under pressure, with serious implications for both mountain and lowland areas. Greater attention is being paid to this critical issue through events, scientific publications and research programmes around the world, but more concerted efforts are required to face the growing challenges of adequate water quality and supply.

41. In March 2009, the fifth World Water Forum held a side event on the theme "Mountains of the World: water towers for the 21st Century?", which was organized jointly by FAO, the International Centre for Integrated Mountain Development, the Nepal Water Conservation Foundation and the Geographic Institute of the University of Berne. An important message emerged from the event: mountain water resources are under increasing pressure; innovative management approaches, cross-sectoral institutional mechanisms and forward-looking political decisions are required in order to face the future challenges.

42. Recent research results from the Geographic Institute demonstrate that the hydrological contribution from mountain regions to the adjacent lowlands is disproportionally high. In humid areas, mountain discharge proportions of 20-50 per cent of total discharge are observed, while in semi-arid and arid areas the contribution of mountains to total discharge amounts to 50-90 per cent, with extremes of over 95 per cent. About 44 per cent of mountain areas provide supportive or essential water resources for the lowland dwellers and function as "water towers". Large mountain systems, which are critically important are found in the Rocky Mountains, the Andes, the Middle East, northern and southern Africa, Central Asia and in the western and eastern Himalayas. Lowland regions, which today depend heavily on mountain water resources, might be adversely affected by altered discharge patterns from mountains and increasing demands for water for food production.

43. It is increasingly recognized that high altitude wetlands are important for water storage, flood mitigation, and as support for thousands of livelihoods throughout the Hindu Kush-Himalaya region. The International Centre for Integrated Mountain Development has created a regional database for high altitude wetlands to meet the information demand on this resource.

44. The Institut de la Montagne in Chambéry, France, has issued a number of publications on mountains and water and organized events, such as the session on the theme "Hydrology and climatology in mountain areas" at the meeting of the European Geosciences Union in 2008 and a special session on the theme "Water in mountains" at the thirteenth World Water Congress, held in Montpellier, France.

Watershed management

45. Current approaches to watershed management combine physical interventions with the promotion of sustainable livelihoods in order to reverse the degradation of natural resources and buffer the negative impacts of socio-economic change.

46. The follow-up to the global review of watershed management experiences, led by FAO, has received considerable attention since 2007. The technical publication

entitled "The new generation of watershed management programmes and projects" and the policy document entitled "Why invest in watershed management?" were widely disseminated. The recommendations from the global review are being applied in several field projects, such as in Pakistan, Tajikistan and West Africa.

47. The twenty-sixth session of the European Forestry Commission Working Party on the Management of Mountain Watersheds was held in 2008 in Oulu, Finland, on the theme "Forests, water and climate change in high altitude and high latitude watersheds".

48. The International Centre for Integrated Mountain Development is focusing on capacity-building for integrated watershed management practices. Three international training courses were held in 2007, 2008 and 2009 in Kathmandu, as were customized training sessions in Afghanistan and Tibet.

49. The Latin American Technical Cooperation Network on Watershed Management aims to increase technical capacity in watershed management, focusing on exchanges of experience, knowledge management and transnational cooperation. The Network continues to play a key role in monitoring and in fostering collaborative actions in Latin America as well as in networking information and experience related to integrated watershed management through electronic forums and the publication of a periodical.

Disaster risk management

50. Disaster risk management in mountain areas is receiving increasing attention, particularly in the context of the impacts of climate change. The growing risks of glacial lake outburst floods in the Himalayas and rockfalls in the Alps, resulting from the upward movement of permafrost, which is threatening strategic roads and railway lines, are just two examples.

51. The first World Landslide Forum was organized by the International Consortium on Landslides in 2008. FAO contributed to a special session on the theme "Watershed and forest management for risk reduction", which put landslides into a multi-hazard, landscape, livelihood and food security context.

52. The International Centre for Integrated Mountain Development has developed a training manual for flash flood management and is updating the inventory of potentially dangerous glacial lakes in the Hindu Kush-Himalaya region. In terms of regional floods, the Centre has developed a web-based system for sharing precipitation and discharge data. To overcome the lack of access to data, the Centre is exploring the possibility of using rainfall estimations based on satellite information as a component in early warning systems for floods and flash floods.

Indigenous issues

53. Indigenous groups living in less-favoured areas, such as mountains, are among the poorest in the world owing to socio-economic and political marginalization. Yet, many lessons can be learned from their approaches to and experiences in managing and conserving mountain ecosystems.

54. The International Centre for Integrated Mountain Development and Tebtebba Foundation (Philippines) finalized an analysis of the achievements of the first International Decade of the World's Indigenous People in 10 countries in Asia with

a specific focus on mountain areas. The findings show that most Governments still do not fully recognize indigenous peoples in their national constitutions, especially their right to access land and natural resources.

55. The World Mountain People Association, born out of the decision to make the voice of the mountain people and their needs heard, is currently proposing to create regional centres for interaction and cooperation between the mountain populations and national policymakers, national funding agencies and international actors (local and international non-governmental organizations).

56. The increased role of indigenous peoples in decision-making regarding development processes was apparent at the Indigenous People's Global Summit on Climate Change, held in Alaska, United States of America, in 2009. The summit enabled indigenous peoples from around the world to exchange knowledge and experiences in adapting to the impacts of climate change and to develop key messages and recommendations for the United Nations Framework Convention on Climate Change Conference of the Parties, to be held in Copenhagen, in December 2009. The Mountain Partnership secretariat delivered a presentation and explored ways on how the Partnership could help move these important issues forward in mountain regions.

Gender

57. Mountain women face many of the same challenges faced by women throughout the developing world, but those challenges are further accentuated by altitude, steep terrain and isolation.

58. In response to the Orem Declaration of Mountain Women (the final document of The Women of the Mountains Conference, 2007, organized by Utah Valley University and the Utah-Russia Institute in Orem, Utah, United States of America), several institutions in the Rocky Mountain States of North America established a regional network on sustainable mountain development and gender issues. This led to exchanges of state legislatures/parliaments between Rocky Mountain States and mountain nations in Central Asia; including support of sales by Vista 360, a non-governmental organization based in the United States of hand-made local handicrafts from the mountains of Central Asia in the United States and the funding of cultural exchanges.

59. The International Centre for Integrated Mountain Development has organized training sessions, workshops and exposure visits on gender and socially inclusive disaster preparedness, gender mainstreaming in medicinal and aromatic plants; and exposure visits for Afghani women professionals to observe small enterprises run by women in Nepal. It has also carried out gender assessments of poverty reduction projects in India and Nepal with the aim of formulating gender-sensitive mountain policies and practices.

60. Women Organizing for Change in Agriculture and Natural Resource Management implemented the project entitled "Institutionalizing gender-responsive research and development through women's networks" with partners in India, the Lao People's Democratic Republic and Nepal.

Payment for environmental services

61. Mountain regions have a significant potential for the deployment of innovative financing mechanisms such as payment for environmental services schemes, given the global importance of their resources (water, biodiversity energy, among others).

62. The FAO Sustainable Agriculture and Rural Development in Mountain Regions project, funded by France and Switzerland, published a discussion paper in 2007 for policymakers which provides a comparative overview of existing methods and tools aiming to valorize mountain externalities, and draws success elements for the implementation of payment for environmental services.

High-quality mountain products

63. High-quality mountain products are becoming an increasingly important means to improve the livelihoods of mountain communities around the world.

64. The Mountain Products Programme of FAO, implemented in the context of the Mountain Partnership, is working to improve the production and marketing of quality local products (for example, in Morocco) by providing mountain people with organizational skills, market linkages, technology and needed know-how.

65. In 2009, during the Commission on Sustainable Development Partnerships Fair, several Mountain Partnership members presented their work on high-quality products, including the work of the Mountain Institute on medicinal and aromatic plants in eastern Nepal, its support to Nixi Tibetan potters in China, Practical Action's help to farmers in Nepal and Peru to improve dairy value chains for milk and cheese production using an innovative participatory market mapping approach, and the work of the Dean's Beans Organic Coffee Company with Ethiopian coffee farmers to ensure high-quality production that is sold at fair trade prices.

Tourism

66. Tourism in mountain areas is a potential long-term source of income and, if well and wisely managed, can create positive effects that can be channelled towards both conservation and benefit-sharing.

67. UNEP has championed a number of initiatives designed to promote sustainability in mountain tourism activities, including the good practices guide entitled "Tourism and mountains" and the Marketing Assistance for Sustainable Tourism in Nepal (MAST-Nepal) project, which are two recent initiatives coordinated by UNEP to support mountain destinations. MAST-Nepal is a two-year project funded by the European Commission's Asia-Invest Programme which is designed to assist tourism companies in Nepal to develop and market more sustainable tourism products.

68. The World Tourism Organization has developed a set of indicators in order to assist managers in making informed decisions regarding issues of particular concern to mountain environments, for example, loss or degradation of flora and fauna, erosion, impacts of activities on water quality, seasonality and the economic benefits of tourism activity.

Policy and law

69. The Sustainable Agriculture and Rural Development in Mountains (SARD-M) project aims to assess the strengths and weaknesses of mountain policies, institutions and processes in terms of social, economic and environmental aspects. Rapid assessments have been conducted in the Andes, the Carpathians, Central America, the Hindu Kush-Himalaya region, the Mediterranean Basin, South-East Europe and East Africa. Its overall report, published in 2007, provides an analysis of the major findings and knowledge on how to mainstream sustainable mountain development into national and regional policymaking.

70. The regional Fouta Djallon Highlands Integrated Natural Resources Management Project, funded by the Global Environmental Facility, is a 10-year project which started in 2009 and is jointly implemented by the African Union, FAO and UNEP. The Project involves eight countries in West Africa, namely, Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal and Sierra Leone. One important component of the project is to mitigate the causes and negative impacts of land degradation through the establishment of a regional legal and institutional framework and the strengthening of regional cooperation in transboundary natural resources management. The project will support the eight participating countries in adapting and harmonizing their conservation laws.

71. The European Association of Elected Representatives from Mountain Areas contributed to the draft of the own-initiative opinion entitled "For a green paper — towards an European Union policy for upland regions: a European vision for upland regions", which was unanimously adopted by the Committee of the Regions in 2008.

Education

72. The International Programme on Research and Training on Sustainable Management of Mountain Areas was conceived of and organized at the end of 2007 by the Mountain Partnership secretariat, UNESCO and the Faculty of Agriculture of the University of Turin, Italy. The programme is funded by the Piedmont region, local authorities, private groups and by international organizations (Capacity Building International, Germany (InWent) and the Consortium for Sustainable Development of the Andean Ecoregion (CONDESAN)). In 2008, the training course focused on "Mountain Environment and Global Change", and in 2009 on "Developing economic opportunities for mountain areas".

73. UNESCO is currently preparing a teaching resource kit for mountainous countries in English, French and Spanish, funded by the Flemish Government of Belgium. The kit targets schoolteachers and pupils in secondary schools in mountain countries worldwide and will be distributed in late 2009 or early 2010. The kit offers a creative approach to environmental education and is designed to stimulate pupils' curiosity and allow for a better transmission of scientific information and environmental knowledge.

74. The Move4Nature Teacher Training programme on Education for Sustainable Development in the Carpathians is being developed by the Mountain Partnership secretariat Environmental Reference Centre at the UNEP Office in Vienna in partnership with the Carpathian Sustainable Education Network. The training

programme is aimed at introducing the topic of protection and sustainable development of the Carpathian Mountains in regional educational institutions.

75. The University of Central Asia is one of the few institutions worldwide that is dedicated specifically to mountain research and development. Founded in 2000 by the Governments of Kazakhstan, Kyrgyzstan and Tajikistan and His Highness the Aga Khan, the University has signed a series of memorandums of understanding with partner universities worldwide. It covers capacity-building for faculty as well as joint research initiatives, including a programme for long-term monitoring in the mountains of Central Asia. In Tajikistan, the University offers training courses to employees of Afghan state and civil society organizations.

Research

76. In 2008, the Mountain Partnership secretariat organized a workshop to define and agree on ways to achieve better information sharing and coordination of scientific events and projects related to mountains, to improve collaboration on research activities focused on mountains, and to facilitate fund-raising for new research projects. As a result, a new communications system is being established that includes an online discussion forum and calendar of events related to research on mountains.

77. UNESCO further promoted the Global Change in Mountain Regions (GLOCHAMORE) initiative jointly developed with the Mountain Research Initiative. An international UNESCO-Man and Biosphere workshop on the theme "Research strategy on global change in mountain biosphere reserves" was held at the International Centre for Integrated Mountain Development in 2008 in conjunction with the International Mountain Biodiversity Conference jointly sponsored by the International Centre for Integrated Mountain Development, the International Union for the Conservation of Nature and Natural Resources and UNESCO. During the workshop, participants fine-tuned implementation modalities of the GLOCHAMORE research strategy to render it operational in mountain biosphere reserves and other mountain protected areas. In 2009, 10 mountain biosphere reserves (in China, India, Germany, Peru, Russian Federation, Spain, Switzerland, United States) started implementing the GLOCHAMORE research strategy.

78. The Centre for Mountain Studies, Perth College, Scotland, coordinates the integrated assessment of Europe's mountain areas for the European Environment Agency and the Climate Change — Adapting to The Impacts, by Communities in Northern Peripheral Regions project (Clim-ATIC). Clim-ATIC brings together new and existing knowledge and experiences on how rural communities throughout Europe's northern periphery can better increase their capacity to make and implement decisions to adapt to climate change. UNESCO established a Chair in Sustainable Mountain Development at the Centre for Mountain Studies to support the development of research on climate change in mountain areas and to share the innovative approaches initiated at the Centre with institutions in Asia and Latin America to develop Masters-level courses.

79. In 2008, a European Cooperation in Science and Technology strategic workshop on the theme "Global change and sustainable development in mountain regions" was organized by the Austrian Federal Research and Training Centre for Forests, Natural Hazards and Landscape, the Austrian Academy of Sciences and the

Mountain Research Initiative. The workshop focused on the implications and challenges of climate and political and socio-economic change for the future development of mountain areas.

80. The Mountain Research Initiative established the South-Eastern Europe Mountain Research Network to organize global change research in the mountain regions of Greece, Turkey and the Balkan region. It also created the Science for the Carpathians network to further global change research in the Carpathians and organized a Swiss-South African conference on mountain observatories to initiate international collaboration, including the planned establishment of a network of permanent hydroecological observatories in mountains in southern Africa. In 2007, the Global Change Research Network in African Mountains was launched with the support of the Mountain Research Initiative. The network comprises 450 members and organized a planning workshop in 2008 on the theme "Establishing high altitude climate observatory systems in the Ethiopian highlands".

Communications and networking

81. In 2007, the theme of International Mountain Day, "Facing change: climate change in mountain areas", underlined the effects of climate change on mountains and the implications for humankind beyond mountain areas. In 2008, the theme of International Mountain Day was "Food security in mountains: high time for action" and provided an apt occasion to reflect on how hard it is for mountain people to consistently obtain adequate and nutritious food. In 2009, the theme for International Mountain Day will focus on disaster risk management in mountain areas.

82. The Mountain Forum is a global network of networks promoting sustainable mountain development through information sharing, mutual support, awareness-raising and advocacy. Currently the Mountain Forum comprises around 5,500 individual members. The year 2008 saw eight regional e-discussions and conferences and two international e-conferences on key themes, such as the use of Geographic Information System and disaster recovery strategies. During 2007/2008, institutional mapping exercises resulted in profiles of over 800 organizations working on mountain issues in order to support networking and build strategic alliances.

83. Since its creation, InfoAndina has fulfilled the role of communication and information dissemination for CONDESAN. It has centred its efforts towards the generation of knowledge that supports reflection processes and facilitates the work of partners on sustainable mountain development in Latin America.

84. Mountain Research and Development is the only peer-reviewed international journal that deals with research as well as development in mountain areas worldwide. During 2007 and 2008, Mountain Research and Development featured contributions on issues such as migration and vulnerability, policy and institutions for mountain development, and mountain rural development in the face of globalization. In 2009, the journal became an online publication.

B. Partnerships, transboundary cooperation and funding mechanisms

Partnerships

85. The Mountain Partnership continues to grow and currently has more than 160 members, including governments, intergovernmental organizations and major groups. Starting in 2008, the Mountain Partnership secretariat, in order to provide more effective services and support to partnership members, has undergone a process of decentralization. Today, the Mountain Partnership secretariat consists of central and decentralized hubs hosted, respectively, by FAO in Rome (Central hub), the Banff Centre in Canada (North American hub), CONDESAN in Peru (Latin America hub), the International Centre for Integrated Mountain Development in Nepal (Asia/Pacific hub), as well as the Environmental Reference Centre hosted by UNEP in Vienna. Specific thematic initiatives have been launched during the period 2008/2009 by the Mountain Partnership secretariat in response to emerging issues and priority needs. A regional project for the strengthening of participatory management for the sustainable development of the Andes is being prepared in close cooperation with the Governments of Argentina and Peru. Discussions were held with the Rockefeller Foundation to explore potential collaboration in the area of adaptation to climate change. Cooperation with the Convention on Biological Diversity secretariat has been initiated to assist in the implementation of the Programme of Work on mountain biological diversity. In 2009, the Asia/Pacific hub held online training advocacy courses for Asia/Pacific members. To increase awareness on sustainable mountain development issues, it also initiated the Outreach Programme for Central Asia, with regular radio broadcasts and newspaper coverage in local languages for Kyrgyzstan, Tajikistan and Uzbekistan. The Latin America hub held electronic conferences on the themes "Food crisis: challenges and opportunities in the Andes", "Hydrological environmental services in the Andes" and "Rural territorial development and governance of natural resources: reflections in the Andes".

Transboundary cooperation

86. The legal framework for the integrated and sustainable development of the Alps, provided by the Alpine Convention, was broadened with the adoption of an action plan on mitigation of and adaptation to climate change. Working groups and platforms representing contracting parties and observers pursued activities related to transport, the UNESCO World Heritage Centre, natural hazards and ecological networks. New working groups and platforms were established to deal with water management, wildlife and demographic changes in the Alps. In addition, seminars on the implementation of the Ministerial Declaration on Population and Culture were conducted with the aim of strengthening transboundary cooperation between mountain populations. The Alpine Convention continued its cooperation activities in the regions of the Carpathians, the Balkans, the Caucasus and Central Asia.

87. The Framework Convention on the Protection and Sustainable Development of the Carpathian Mountains has been ratified by all seven Carpathian countries: Czech Republic, Hungary, Poland, Romania, Serbia, Slovakia and Ukraine. On the occasion of the Second Meeting of the Conference of the Parties to the Carpathian Convention, held in 2009 in Bucharest, the Protocol on Conservation and Sustainable Use of Biological and Landscape Diversity was adopted and signed. Moreover, the Ministers called for the establishment of the "Carpathian Space" as a

proposed financial instrument for enhancing the protection and sustainable regional development of this important mountain region in the heart of Europe.

88. An intergovernmental process for the sustainable development of the Caucasus mountain region is being developed in partnership with UNEP/Vienna, the Regional Environmental Centres of the Caucasus and the Russian Federation, with financial support from the European Community. A meeting of Ministers and high-level representatives of the Caucasus countries (Armenia, Azerbaijan, Georgia, Iran (Islamic Republic of), Russian Federation and Turkey) was held in 2007 in Vaduz, Liechtenstein, resulted in a call to strengthen partnerships for the protection and sustainable development of the mountain regions of the Caucasus and a request to UNEP to propose a road map of the process. At a follow-up meeting in 2009, governmental representatives suggested concrete thematic areas for intergovernmental collaboration.

89. The Central Asia Mountain Partnership, funded by a Swiss project from 2001 to 2008, has evolved into an independent non-governmental organization, CAMP Alatau, that is today engaged in mountain pasture management, energy efficiency, community development and disaster risk management, and was the main organizer of the regional Dare-to-Share Fair on mountain development and learning for sustainability, held in Dushanbe in 2008.

90. The Alliance of Central Asian Mountain Communities, an association of 41 community-based organizations from Kazakhstan, Kyrgyzstan and Tajikistan, is facilitating exchanges of experience and information by conveying the community voice to global forums. It is implementing a number of projects on energy efficiency and production of fuel-efficient stoves which, on the basis of their success and local appreciation, have received government endorsement for wider application.

91. Building on the Swiss-funded Pamir Strategy Project (2001-2003), the Centre for Development and Environment and its partners will begin a new four-year programme in 2009 for sustainable land management in the High Pamir and Pamir-Alai Mountains in Central Asia. The programme will establish demonstrated good practices through a participatory and transboundary approach to the sustainable and equitable management of natural resources in the region.

92. As part of a broader regional cooperation agenda, the Aga Khan Development Network is creating linkages between communities in the mountainous areas of south-eastern Tajikistan and Badakhshan Province in Afghanistan. In particular, the Network is working on a teacher training programme in Tajikistan, with a counterpart institution in Afghanistan, to expand cross-border educational exchanges.

93. The Paramo Andino Project is a regional initiative that contributes to overcoming the main barriers to conservation of biodiversity and protection of Paramo hydrology. The project is financed by the Global Environment Facility, executed by CONDESAN at the regional level and by different partners at the national level. The expected results of the project are working compensation schemes, which reward efforts contributing to the conservation of Paramo ecosystems, and relevant policy mainstreamed at different scales.

94. In 2007, the Centre for Mediterranean Cooperation of the International Union for the Conservation of Nature and Natural Resources brought together member organizations and experts to analyse successful case studies and discuss priority

lines of work for the conservation and sustainable development of Mediterranean mountains. As a follow-up to the workshop, the Mountain Partnership secretariat central hub in Rome hosted in 2009 a preparatory meeting with representatives of the International Union for the Conservation of Nature and Natural Resources, several Italian regions and environmental organizations to discuss building a Mediterranean mountains agenda. The International Union for the Conservation of Nature and Natural Resources has agreed to lead this initiative, which will foster the sharing and exchange of information, best practices and knowledge as well as provide technical support and enhance capacities for conservation and sustainable development in Mediterranean mountains.

Funding mechanisms

95. A preliminary portfolio analysis of World Bank investments relevant to sustainable mountain development indicates investments of about \$344 million globally for the period 2007-2009. In terms of regional focus, investments in sustainable mountain development in the Latin America region are leading with about \$93 million, followed by Eastern Europe and Central Asia with about \$63 million. The Middle East/North Africa region received investments in mountain regions amounting to about \$40 million, while for Africa and South Asia only smaller amounts were directly associated with sustainable mountain development. In recent years, many climate change mitigation and adaptation projects have been developed, and it is expected that this area of investment will continue to grow over the coming years. Additional investments from new, innovative financing mechanisms, such as carbon trading, are also expected to be increasingly available for mountain regions.

96. Funding economic growth, political empowerment, citizenship equality and poverty reduction of mountain peoples, most of which are indigenous and marginalized from mainstream investment and development arrangements, forms part of the mandate of the International Fund for Agriculture Development. The Fund supports the development of innovative (rural) financial services, such as Financing Facility for Remittance, and the development of index-based weather insurance and related services, which are being piloted and tested, including in mountain areas.

97. The Aga Khan Foundation is achieving a significant impact on poverty alleviation by actively linking mountain communities with service providers and facilitating support in cases where communities cannot access services.

98. PlaNet Finance works to build the capacity of microfinance institutions to deliver their services, including in mountain areas, while assisting their clients in developing sustainable economic activities. In the Yungus region of Argentina, PlaNet Finance has conducted a feasibility study for ecotourism activities. In Nepal, PlaNet Finance is proposing to help microentrepreneurs switch to sustainable business practices, while among the Karen people in north-east Thailand and in the foothills of the sacred Mt. Banahaw in the Philippines, cultural tourism programmes are being developed.

V. Recommendations

99. During the period since the Secretary-General last reported to the General Assembly on the topic of sustainable mountain development, significant progress has been made on several issues ranging from raising awareness about the global importance of mountains to the strengthening and creation of institutional arrangements at the national, regional and international levels and greater collaborative action by the international community to address specific mountain issues. Nevertheless, much remains to be done, especially in the light of the often rapid and severe impact on mountain areas from climate change, soaring food prices, migration to urban areas and other issues that require urgent attention. The General Assembly, in its efforts to address those challenges in a manner that is consistent with chapter 13 of Agenda 21, the Johannesburg Plan of Implementation and the Millennium Development Goals, may wish to reiterate some of the possible courses of action for Governments, such as:

(a) Encourage the continuation of existing or the further establishment of new national committees or similar institutional arrangements, bodies and mechanisms to strengthen intersectoral coordination and collaboration for sustainable development in mountain areas;

(b) Assist developing countries and countries with economies in transition to formulate and implement national strategies and programmes for sustainable mountain development, through bilateral, multilateral, and South-South cooperation, as well as through non-traditional arrangements, such as decentralized cooperation;

(c) Promote, where relevant, the establishment of regional mechanisms for coordinated transboundary cooperation for sustainable mountain development and strengthen existing mechanisms, such as the Alpine Convention and the Carpathian Convention, and exchange and learning opportunities between them;

(d) Encourage greater engagement by civil society and the private sector in the development and implementation of programmes related to sustainable development in mountains;

(e) Support the collaborative efforts of the Mountain Partnership and encourage the active involvement of relevant government, civil society, and, in particular, private sector institutions at the national and regional levels, in this evolving voluntary alliance;

(f) Support the continued development and implementation of communication and advocacy programmes for sustainable mountain development at all levels, taking advantage of the opportunities provided annually by International Mountain Day on 11 December;

(g) Support education, extension and capacity-building programmes, in particular among local mountain communities, to further sustainable mountain development at all levels;

(h) Accelerate efforts, in the light of the rapid rate of change and severity of impacts, to enhance awareness of the effects of climate change as well as risks and hazards in mountain areas and develop adaptation measures, approaches and policies to mitigate and manage impacts;

(i) Support increased and better coordinated research efforts at all levels to gain a better understanding of the environmental, economic and social drivers of change affecting mountain regions and promote the collection of disaggregated data from mountain areas as the basis for informed decision-making for appropriate policies and programmes;

(j) Foster strengthening of the role of mountain women in planning and decision-making processes that affect their communities, cultures, livelihoods and environments;

(k) Increase levels of investment and funding for sustainable development in mountain regions at the global, regional, national and community levels, including through innovative financial mechanisms and approaches, such as debt-for-sustainable development swaps, payment for environmental services and microfinance opportunities;

(l) Promote and provide a supportive and enabling environment for the development of high-quality products and services from mountain areas as a means to improve livelihoods and protect mountain environments and encourage more active involvement by the private sector in all parts of the value chain for high-quality mountain products;

(m) Ensure, through more effective engagement in the decision-making process, that indigenous cultures, traditions and knowledge are fully recognized and included in development policy and planning in mountain regions and that access and agreed-to rights to land and natural resources are respected;

(n) Promote the conservation and sustainable use of increasingly scarce water resources from mountain areas through innovative management approaches, improved institutional mechanisms that cross administrative boundaries and forward-looking political decisions that safeguard water resources for future generations;

(o) Ensure that policies and programmes are in place to adequately and urgently respond to soaring food prices and related challenges for mountain communities, which are often among those most severely affected;

(p) Encourage multi-stakeholder cooperation, through the Mountain Partnership and other mechanisms, for more effective implementation of the Programme of Work on mountain biological diversity of the Convention on Biological Diversity, in particular, in view of the review by the Conference of the Parties that will take place in 2010;

(q) Support better integration of mountain issues in intergovernmental discussions on climate change and combating desertification in the context of the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification, respectively;

(r) Renew efforts to ensure that mountain issues are more effectively mainstreamed into and receive high priority within development agendas and processes dealing with poverty reduction, food security, climate change and other issues that are critical to sustainable development in mountain areas.